

Pediatric HIV in Pakistan: From Low Prevalence to Emergency (2026) - Tackling Horizontal Transmission, Diagnostic Errors and Public Safety Strategies

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Human immunodeficiency virus (HIV) is an RNA retrovirus that attacks and damages CD4+ helper T cells, which are necessary for fighting off illnesses¹. If left untreated, HIV weakens the immune system, making the body vulnerable to opportunistic infections². This leads to advanced-stage acquired immunodeficiency syndrome (AIDS) within 8 to 15 years. HIV/AIDS is incurable. However, effective antiretroviral therapy (ART) is available, and ART has changed a fatal diagnosis into a manageable, lifelong chronic condition.

Pediatric HIV – Global: Anyone can get infected by HIV, regardless of socioeconomic status, gender, orientation, or age. Approximately 1.4 million children aged 15 are living with HIV (3%) worldwide. Each year, an estimated 120,000 children contract HIV, and 75,000 die from AIDS-related diseases. In the developed countries, prevention programs have reduced mother-to-child transmission (vertical) to less than 1%. Despite this, roughly 330 children still contract HIV every day worldwide^{1,3}.

Pediatric HIV – Pakistan: Pakistan is a developing country and the world's fifth most populous nation. Pakistan has exhibited a high-risk profile but low HIV prevalence historically. However, today HIV is no longer confined to high-risk populations, but has reached the general public and is affecting children⁴. Pakistan is consequently experiencing a rapid surge in pediatric HIV cases, sparking a severe yet entirely preventable public health national emergency. Between January 2025 and March 2026, more than 2,108 children tested positive nationwide. Sindh province has been hit the hardest, with 1,515 cases, including 329 children aged 10 years and older⁵. Punjab is also experiencing a major pediatric outbreak with 331 cases in Taunsa⁶.

Primary Drivers of Pediatric HIV Outbreaks in Pakistan:

Pediatric HIV transmission primarily occurs either from: (1) mother to child (Vertical)¹ or (2) unregulated, unsafe healthcare settings (Horizontal). The global pediatric HIV spread is predominantly driven by mother-to-child transmission¹. However, in Pakistan, major outbreaks have been driven heavily by medical negligence/healthcare malpractices. This is confirmed by data from 2019 to 2026 outbreaks, which show that

over 90% of HIV-positive children have HIV-negative mothers⁵⁻⁷. The primary medical, structural, and socioeconomic drivers are given below:

Horizontal, Iatrogenic (Healthcare-Associated) Transmission – In Pakistan, reuse of single-use needles, syringes, intravenous drip sets, and cannulas across most public, private and unlicensed healthcare facilities is directly responsible for pediatric HIV transmission⁵⁻⁹.

Furthermore, there is a cultural preference for treatment via injections only, which demands unnecessary invasive treatments, and consequently multiplies children's exposure to HIV contaminated tools⁹. In addition, multi-dose vials are often cross-contaminated. Poorly trained medical personnel routinely puncture multi-dose medication vials with used syringes, contaminating the entire reservoir fluid. Staff often change only the needle and continue to reuse the same syringe body for getting medicine from the multi-dose vial containing traces of infected blood⁷⁻⁸. This medication is then distributed to dozens of subsequent pediatric patients. Recently, the BBC EYE undercover investigation footage has exposed these widespread, hazardous practices in a public hospital in Taunsa, Punjab⁹.

Unsafe, Unregulated Blood Supply: In Pakistan, unlicensed/unaccredited blood banks bypass mandatory screening, thus allowing HIV infected blood into the healthcare systems. Consequently, systemic failure has caused 14% to 42% of pediatric HIV transmissions, especially impacting thalassemia and hemophilia patients¹⁰. The system also depends on high-risk family replacement donors rather than safe blood pools⁷.

Misdiagnosis of Pediatric HIV: All public and most private laboratories use low-cost, sub-standard, rapid antibody diagnostic test kits, not prequalified by WHO. This leads to high rates of false negatives, consequently delaying treatment for HIV infected children. Similarly, unregulated doctors misinterpret pediatric symptoms such as persistent fevers, weight loss, diarrhea, as malnutrition, tuberculosis, or common infections. Doctors dismiss HIV as a possibility, delay diagnosis and lifesaving treatment¹¹.

Linient Infection Control (IPC) and Waste Management: In Pakistan, most medical facilities lack sterilization equipment, including autoclaves, natural gas, and safe medical waste disposal systems. This healthcare negligence allows minor dental, surgical, and circumcision procedures to be performed with

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unsterilized equipment. Also, biohazard waste is not segregated and deactivated; instead, it is collected from dumps, repackaged, and resold as new, sterile medical supplies⁷.

Quackery – In Pakistan, more than 600, 000 unlicensed medical practitioners with no formal medical training thrive nationwide. The public depends on these quacks because they are convenient and affordable. Consequently, they are a major source of pediatric HIV transmission in Pakistan¹².

MOTHER-TO-CHILD TRANSMISSION (VERTICAL)

– Global advancements have made routine HIV testing standard for pregnant women¹⁶. In Pakistan, vertical transmission persists because maternal HIV screening remains low/non-existent due to a lack of knowledge. In addition, extreme stigma often forces diagnosed women to drop out of care entirely to avoid discrimination. Since these mothers either never know their HIV status or they abandon their antiretroviral therapy (ART), their newborns miss out on preventative ART during pregnancy, delivery, and breastfeeding^{1,7,16}.

DIAGNOSTIC ERRORS IN PEDIATRIC HIV OUTBREAK (2026)

- The ongoing pediatric HIV crisis in Pakistan is driven primarily by critical diagnostic failures. In newborn babies, serological diagnosis of HIV is difficult because of the presence of maternal anti-HIV antibody up to 18 months. The HIV DNA-PCR must be performed within the first 48 hours of birth, at 14 days, at 1 month, and then at 4 to 6 months of age in all HIV-negative infants, to prevent HIV misdiagnosis^{11,16}. Babies born to HIV-infected mothers must be monitored for CD4+ cell count during the first 6 months of life, and infants identified as HIV+, and infants with unclear HIV status must also be monitored for up to 12 months, with a 3-month interval¹³. At the heart of this pediatric emergency is the systematic misuse of rapid antibody tests on infants under 18 months of age¹³. Because these rapid tests look for antibodies rather than the virus itself, they create two distinct, catastrophic errors. First, they trigger false positives by detecting harmless maternal antibodies that healthy babies carry for up to 18 months, forcing uninfected children onto unnecessary, lifelong antiretroviral therapy. Second, they produce false negatives by failing to see the actual virus in truly HIV-infected infants, leaving vulnerable children without the lifesaving ART care they desperately need¹⁴. Recent emerging data from a Sukkur, Sindh hospital confirms high pediatric HIV infection rates, where babies were diagnosed only with rapid tests due to a severe lack of confirmatory DNA-PCR tools¹⁸. This situation aligns perfectly with broader reports of critical diagnostic gaps and inadequate, age-inappropriate testing protocols across the region. To halt this public health crisis and protect vulnerable children, Pakistan requires urgent enforcement of age-specific testing national/international guidelines, alongside the immediate deployment of appropriate molecular diagnostic tools

and trained, specialized medical staff¹⁵.

Public Safety in Healthcare: Challenges and Solutions

Recent pediatric HIV outbreaks across Pakistan have triggered urgent Pakistani national media attention because medical negligence has led to rising preventable HIV cases and multiple child fatalities⁷⁻¹². HIV legislation, on paper alone, cannot ensure public safety. Inconsistent enforcement allows the reuse of dangerous needles. To eliminate this risk, provincial health regulators must bolster crackdowns across all healthcare facilities, implement strict registration and tracking requirements, impose harsher criminal penalties, and establish a unified public registry. These preventive measures will prevent illegal clinics and unaccredited blood banks from reopening under different names. Mandatory NAT-PCR screening of all donor blood units will stop the spread of HIV transmission via blood transfusions⁹. Furthermore, the government must seriously initiate continuous public and medical staff education/training campaigns. This training will especially help medical staff correctly interpret pediatric diagnostics to prevent HIV infections⁹⁻¹⁶.

The recurring pediatric HIV crisis in Pakistan is human-made, iatrogenic horizontal transmission. Countless unsafe medical practices, unlicensed clinics, tainted blood supply, misdiagnosis, untrained medical staff, operational neglect in public, private and quack healthcare settings are primarily responsible for the 2019 to 2026 pediatric HIV epidemic. There should be zero tolerance for diagnostic errors and a ban on the use of rapid diagnostic antibody tests, and mandatory use of HIV NAT-PCR assays, for children under the age of 18 months. Maternal antibodies are passively transferred to infants; therefore, rapid antibody tests are inaccurate. The NIH guidelines mandate virologic NAT-PCR diagnostic assays for children under 18 months and monitoring of CD4+ cell count. Socially, families are suffering from community stigma that is isolating their HIV infected children from family, friends, and schools. True solutions to recurring HIV outbreak crises in Pakistan need more than just constructing ART adult and children therapy centres; these HIVART facilities must also be equipped with a highly-trained HIV specialized medical team, child-friendly medications, and age-specific, appropriate diagnostic tools. Finally, public and medical staff HIV/AIDS awareness is essential and urgently needed. However, my countless encounters with leaders in media, educational institutions, and businesses show me resistance towards awareness campaigns. In the wake of recurring pediatric HIV outbreaks in 2026, the leaders of media, universities, and businesses must end their reluctance and launch aggressive, continuous, public-friendly HIV awareness campaigns to protect the nation's children/nation's future.

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REFERENCES

1. HIV and Specific Population - HIV and Children. HIV Info NIH Gov. April 21, 2026. Available from: <https://hivinfo.nih.gov/understanding-hiv/fact-sheets/hiv-and-children>
2. HIV.Gov. Opportunistic Infections. HIV.Gov. Feb 25, 2026. Available from: <https://www.hiv.gov/hiv-basics/staying-in-hiv-care/other-related-health-issues/opportunistic-infections>
3. UNAIDS. FACT SHEET. Global HIV Statistics. 2026. Available from: https://www.unaids.org/sites/default/files/2026-06/20260612_Global_HIV_Factsheet.pdf
4. Bugchio NI. Occupationally-Acquired HIV Infection - Role of Occupational Medicine in the Prevention and Management: Challenges and Recommendations. 2025; 24(03): J Liaquat Univ Med Health Sci.
5. Yusufzai A. HIV: "At least" 329 children infected in Pakistan province, as medical association blames negligence. BMJ. 2026; 393. doi: 10.1136/bmjs 734.
6. Rashid MA. Silent Spread: Urgent call to address the HIV outbreak among children in Taunsa, Punjab, Pakistan. 2025.
7. Hermez J. A pediatric HIV outbreak in Pakistan. East Mediterr Health J. 2024; 3091: 60-67.
8. Arshad A. Understanding HIV outbreak among children in a rural community of Sindh province of Pakistan. 2023. J Pak Med Assoc. 2021 Aug; 71 (8): S1–S4.
9. BBC. Pakistan hospital at centre of child HIV outbreak caught reusing syringes in BBC Eye investigation. [Online News]. April 14, 2026. Available from <https://www.bbc.com/audio/play/w1730c69lczy52;https://www.youtube.com/watch?v=WWwt68Yscv8&t=730s>
10. Aamir M, Mujtaba G, Amin A, Bashir T, Butt A. Prevalence of transfusion-transmissible infections and associated sociodemographic risk factors among blood donors at a tertiary care hospital in Lahore, Pakistan, 2026. BMC Infect Dis. 2026; <https://doi.org/10.1186/s12879-026-13648-1>.
11. Organization WH. Preventing HIV misdiagnosis. Information Note. December 2023. Available from: <https://cdn.who.int/media/docs/default-source/hq-hiv-hepatitis-and-stis-library/hiv-testing-information-note.1.12.2023.pdf>.
12. Mustufa MA, Khan R, Hussain S, Qidwai MA. Regulation of quackery amid unprecedented HIV outbreak in Sindh, Pakistan. JPMA. 2021; 71 [Suppl. 4]: S-22. doi: <https://doi.org/10.47391/JPMA.0004>.
13. Sacks E. HIV misdiagnosis in paediatrics: unpacking the complexity. J Int AIDS Soc. 2017; 20(Suppl 6): 21959.
14. NIH. Clinical & laboratory monitoring of pediatric HIV infection. NIH September 30, 2025. Available from: <https://clinicalinfo.hiv.gov/sites/default/files/guidelines/documents/pediatric-arv/clinical-laboratory-monitoring-pediatric-infection-pediatric-arv.pdf>.
15. Ahmed W. Frequency of pediatric HIV infection among high-risk children admitted to a tertiary care hospital at Sukker, Sindh, Pakistan. BMC Infect Dis. 2025; 25: 835. doi: 10.1186/s12879-025-11256-z.
16. Organization WH. Consolidated guidelines on HIV prevention, testing, treatment, service delivery and monitoring: recommendations for a public health approach. WHO. 2021.

